



# Effects on Feeds and Housing Management of Livestock During 2014 Floods in Jammu and Kashmir, India

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## ABSTRACT

India is one of the most disaster prone countries in the world which is mainly due to its high geo-climatic conditions as well as its higher degree of social vulnerability. There has been an increase in the frequency and intensity of disasters that has posed a threat not only to the people but to livestock as well. The state of Jammu and Kashmir was hit by severe floods in year 2014 which left a great impact on people as well as on the livestock. The present study was purposively carried out in Kashmir Division of Jammu and Kashmir state that was severely hit by devastating floods in September 2014. Among the various flood affected districts of Kashmir Division, the three districts namely Bandipora, Srinagar and Pulwama were purposively selected based on the highest inundation levels reported in these areas. Livestock production system includes the various aspects of livestock rearing ranging from livestock housing, feeding, breeding, health care, marketing of livestock produce. Most of the variables covered under the ambit of livestock production system were studied to have a look into the pre and post flood scenario in the study area. The major findings of the study revealed that more than half of the respondents (50.00%) were having kutcha type of animal houses before floods of 2014 and among the different districts, Bandipora District had the highest cumulative role in the mixed type of animal houses (22 to 47) post floods. With respect to the extent of damaged animal houses half of the respondents (50.00%) reported that their animal houses were completely collapsed during floods with the highest percentage reported from Srinagar district. It was also reported that about (49.17%) rebuilt/repaired their animal houses in less than one month. The respondents also complained about the non existence of special type of animal houses in their village where animals could be kept during any natural calamity. The findings revealed that the extent of scarcity of feed and fodder was severe in case of concentrates (50.42%) followed by dry fodder and the scarcity of fresh drinking water was to such an extent that animals drank flood water during that particular period. However the tap water turned out to be the major source of drinking water for animals both pre and post floods with a marginal increase after floods. The results also depicted that about (52.92%) of the respondents houses were not collapsed during the floods of 2014.

**Key Words:** Disaster, Flood, Livestock, Scarcity, Housing, Feeding.

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## INTRODUCTION

Economy of Jammu and Kashmir is agriculture dependent and livestock farming occupies an important component of it. About 70 per cent of the livestock is owned by 67 per cent of the small, marginal and landless people thereby contributing 25.6 per cent of agricultural output and 4.11 per cent of total GDP (Anon, 2012). Despite its immense contribution in economy of the nation the livestock sector is facing many difficulties in terms of ill

health, low productivity, unavailability of feeds and forages, poor infrastructure, increased incidence of emerging and re emerging diseases and the most drastic being the natural calamities/disasters. (Anon, 2013). Disasters are not new to mankind they have been the constant and inconvenient companions of human being since time immemorial. World Health Organization (WHO, 2002) defines disaster as any occurrence that causes damage, ecological disruption, loss of human life, deterioration of

health and health services on a scale sufficient to warrant an extraordinary response from outside the effected communication or area. There has been an increase in the frequency and intensity of disasters that has posed a threat not only to the people but to livestock as well.

According to Thole *et al* (1993) the occurrence of any natural disaster like flood aggravates the economy of nation by leaving direct and indirect effect on livestock as well on their owners. The state of Jammu and Kashmir had experienced its worst flood since 60 yr during the first week of September which was mainly due to unprecedented and intense rains. Heavy rainfall caused flash flooding with localized damage across the state along with landslides which impacted road connectivity (Agarwal *et al*, 2014). Thousands of villages and many urban areas were submerged into 10 to 30 feet of water causing loss of life, livestock and

destruction of houses, public infrastructure, lifeline structures and loss of business (Anon, 2014a). More than 280 people were reported dead, about 10,136,063 population were severely affected and 543,379 houses had been completely displaced and flooded in 2014 floods. The devastating floods left a major impact on livestock, with the losses of cattle, sheep and goats thereby hindering the state's economy. Large animal losses above 7000 were recorded besides the total number of sheep that perished in the disaster was 65,000. In addition to this, nearly 500,000 sheep and goats were severely affected due to lack of fodder and 99305 huts and cowsheds were completely destroyed in floods Shah *et al* (2017). This study made an effort to elaborate the deleterious effect of floods on feeds and housing management of livestock during 2014 in Jammu and Kashmir.

**Table 1. Distribution of respondents according to type and pattern of animal housing followed with respect to effect of floods of 2014. N=240**

Housing aspect		District			Total
		Bandipora	Pulwama		
<b>Srinagar</b>					
<b>i. Type of prevalent animal houses</b>					
Kacha	Pre-flood	43 (53.75)	38 (47.50)	49 (61.25)	130 (54.17)
	Post flood	26 (32.50)	14 (17.50)	18 (22.50)	58(24.17)
Pucca	Pre-flood	5 (6.25)	20 (25.00)	9 (11.25)	34 (14.17)
	Post flood	3 (3.75)	19 (23.75)	27 (33.75)	49 (20.42)
Mixed	Pre-flood	32 (40.00)	22 (27.50)	22 (27.50)	76(31.67)
	Post flood	51 (63.75)	47 (58.75)	35 (43.75)	133 (55.42)
<b>ii. Extent of damage to animal houses</b>					
Partially collapsed		22 (22.75)	32 (40.00)	29 (36.25)	83 (34.58)
Completely collapsed		48 (60.00)	34 (42.50)	38 (47.50)	120 (50.00)
No damage done to animal house		10 (12.50)	14 (17.50)	13 (16.25)	37 (15.42)
<b>iii. Time of rebuilding of damaged animal houses since floods</b>					
<1 month		44 (55.00)	33 (41.25)	41 (51.25)	118 (49.17)
1-2 month		8 (10.00)	20 (25.00)	21 (26.25)	49 (20.42)
>2 months		18 (22.50)	13 (16.25)	5 (6.25)	36 (15.00)
No new animal house build		10 (12.50)	14 (17.50)	13 (16.25)	37 (15.42)

(Figures in parenthesis indicate percentage)

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**Table 2. Distribution of respondents as per scarcity of feed and fodder faced during floods of 2014. N=240**

Type of feed / fodder	Extent of scarcity	District			Total
		Srinagar	Bandipora	Pulwama	
Green fodder	Low	26 (32.50)	33 (41.25)	22 (27.50)	81 (33.75)
	Moderate	18 (22.50)	19 (23.75)	23 (28.75)	60 (25.00)
	High	36 (45.00)	28 (35.00)	35 (43.75)	99 (41.25)
Dry fodder	Low	17 (21.25)	12 (15.00)	19 (23.75)	48 (20.00)
	Moderate	26 (32.50)	28 (35.00)	30 (37.50)	84 (35.00)
	High	37 (46.25)	40 (50.00)	31 (38.75)	108 (45.00)
Concentrate	Low	18 (22.50)	17 (21.25)	14 (17.50)	49 (20.42)
	Moderate	22 (27.50)	21 (26.25)	27 (33.75)	70 (29.17)
	High	40 (50.00)	42 (52.50)	39 (48.75)	121 (50.42)

(Figures in parenthesis indicate percentage)

### MATERIALS AND METHODS

The present study was purposively carried out in Kashmir Division of Jammu and Kashmir state that was severely hit by a devastating flood in September 2014. Among the various flood affected districts of Kashmir Division, the three districts namely Bandipora, Srinagar and Pulwama were purposively selected based on the highest inundation levels reported in these areas. The Kashmir Division of Jammu and Kashmir State consists of 10 districts. The present study was purposively carried out in three severely flood affected districts *viz.*, Pulwama in south, Srinagar in central and Bandipora in north of Kashmir. From each selected district two (2) flood affected blocks were purposively selected based on their livestock population for data collection from affected farmers. Further from each selected block four (4) affected villages were randomly selected for questioning of respondents. Finally ten (10) affected farmers were randomly selected from each of the selected village making a total of two hundred and forty respondents. Survey was completed through interview method and observations were recorded through questionnaire.

### RESULTS AND DISCUSSION

#### Livestock Housing

It is very essential for animal's wellbeing. Housing includes any type of shelter, refuge affording protection to animals.

#### Type of animal houses pre and post floods of 2014

The results (Table 1) show that majority of the respondents (54.17%) were having *kutchha* type of animal houses before floods of 2014. Interestingly, the overall numbers of *kutchha* houses were reduced by more than half post floods of 2014 in the study area and most of them being converted to mixed type of houses. Among the different districts, Bandipora district had the highest cumulative role in the mixed type of animal houses (22 to 47) post floods. The reason was that such type of animal house is cheaper to build and has a great tensile strength as compared to that of *kutchha* house.

#### Extent of damage of animal houses

Findings indicate that half of the respondents (50.00%) reported that their animal houses were completely collapsed during floods of 2014 with

**Table 3. Distribution of respondents according to source of drinking water used for livestock by farmers.** N=240

Source of drinking water	Time period	District			Total
		Srinagar	Bandipora	Pulwama	
River water	Pre-flood	0 (0.00)	2 (2.50)	2 (2.50)	4 (1.67)
	During flood	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
	Post flood	3 (3.75)	0 (0.00)	0 (0.00)	3 (1.25)
Tap water (Public supply)	Pre-flood	74 (92.50)	56 (70.00)	64 (80.00)	194 (80.83)
	During flood	3 (3.75)	4 (5.00)	1(1.25)	8 (3.33)
	Post flood	67 (83.75)	73 (91.25)	75 (93.75)	215 (89.58)
Tube well	Pre-flood	6 (7.50)	22 (27.50)	14 (17.50)	42 (17.50)
	During flood	0 (0.00)	4 (5.00)	1 (1.25)	5 (2.08)
	Post flood	40 (50.00)	7 (8.75)	5 (6.25)	22 (9.17)
Flood water	During flood	77 (96.25)	72 (90.00)	78 (97.50)	227 (94.58)

*(Figures in parenthesis indicate percentage)*

the highest percentage reported from Srinagar district, followed by 34.58 percent respondents whose animal houses were partially collapsed. The probable reason for the collapse was that most of the animal houses were not able to withstand/resist the gushing force of flood water as they were primarily made of mud and in other cases with tin sheets and thatched roofs. Srinagar’s maximum damage could be attributed to the fact that inundation period was higher in Srinagar than the other counterparts.

### Rebuilding/Repair of animal houses

The data (Table 1) clearly indicate that majority of the respondents (49.17%) rebuilt/repared their animal houses in less than one month. Among the various districts 22.50 percent respondents from Srinagar district rebuilt/repair the damaged animal house lately that is after two months. The non availability of shelter for animals might have forced most of the respondents to immediately repair/rebuild their houses in a short span of time. The results also show that 15.42 percent respondents didn’t built/repair their houses till date probably due to lack of financial resources or complete loss of animals during floods of 2014. Respondents were asked about existence of special type of animal

houses where majority (100%) reported the non existence of such type of animal houses in their village where animals could be kept during any natural calamity.

### Scarcity of feed and fodder

The results of the study (Table 2) revealed that the extent of scarcity of feed and fodder as reported by respondents (50.42%) was severe in case of concentrates followed by dry fodder and was least in case of green fodder. The results could probably be explained by the fact that there was immense loss of vegetation, damage of the feed and animal sheds, non availability of concentrates in the market, submerged feed and washing away of feed with flood water. Scarcity of feed/fodder was to such an extent that animals ate unconventional non feed stuffs like polythene bags during the floods of 2014. Moreover inaccessibility was another hindrance due to which livestock owners couldn’t feed their livestock timely and properly.

### Source of drinking water

Findings (Table 3) clearly point out that there was scarcity of drinking water during the floods of 2014. Majority of the respondents i.e. (94.58%) reported that their animals drank flood water as

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**Table 4. Distribution of respondents according to the extent of damage done by floods of 2014 to dwelling houses of livestock farmers. N=240**

Extent of damage to farmers house by flood	District			Total
	Srinagar	Bandipora	Pulwama	
Partially collapsed	21 (26.25)	24 (30.00)	23 (28.75)	68 (28.33)
Completely collapsed	12 (15.00)	20 (25.00)	13 (16.25)	45 (18.75)
No damage to house	47 (58.75)	36 (45.00)	44 (55.00)	127 (52.92)

*(Figures in parenthesis indicate percentage)*

fresh drinking water was not available. Moreover (89.58%) respondents switched on to the use of tap water after floods of 2014. A slight increase in usage of tube well was seen in Srinagar district, whereas the number came considerably down in other two districts. However the tap water turned out to be the major source of drinking water for animals both pre and post floods with a marginal increase after floods. The easy access and availability with low cost of tap water makes it a popular choice among masses in study area while the rest of the sources are either costlier or have less availability of water making it difficult to use.

### Extent of damage of dwelling houses of the livestock farmers

It was found that majority (52.92%) of the respondents houses were not collapsed during the floods of 2014. However partial damage of houses was reported much higher than the complete damage of the houses during floods. Since majority of respondents resided in pucca houses the flood water could not do much damage to the houses and hence withstood the same. The number of houses completely damaged was highest in Bandipora district as compared to other two districts.

## CONCLUSION

In an unfortunate incident in September 2014, Kashmir valley was hit by worst ever floods, which affected not only the people but also livestock from almost all walks of life. The study concluded that majority of the respondents (50.00%) animal

houses were completely collapsed during the floods of 2014 with highest percentage reported from Srinagar District. The overall number of Kutch Houses was reduced by more than half post floods of 2014 with Baramulla District having the major cumulative role (22 to 47) in conversion to mixed type of animal houses. It took almost less than one month for the respondents (49.17%) to rebuilt/repair their animal houses post floods of 2014. With respect to livestock feeding, the extent of scarcity of feed and fodder was severe in case of concentrates (50.42%) followed by dry fodder and the scarcity of fresh drinking water was to such an extent that animals drank flood water during that particular period. However, the tap water turned out to be the major source of drinking water for animals both pre and post floods with a marginal increase after floods. It is concluded based on the findings of the study that considering the contribution of livestock to local and national economy and the dependence of poor farmers on livestock for their livelihood the preparedness, response and recovery mechanism should be given better attention both by the Government as well as NGOs and special type of animal houses should be built in the respective villages in order to minimize the economic, social and psychological loss to the livestock farmers during any natural disaster.

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*Received on 30/12/2019      Accepted on 15/03/2020*